Life History Notes on *Lagoa laceyi* (Barnes & McDunnough) (Lepidoptera: Megalopygidae)

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Abstract: Descriptions are given of the egg and larvae. The mature larva is figured. The mature larva is strongly aposematic in coloration.

On 24 July 1959 a number of small larvae were collected in Big Canyon, Guadalupe Mts., Eddy Co., New Mexico, feeding on a scrubby oak, probably *Quercus gambeli*. Big Canyon, just north of the Texas-New Mexico border, runs from extremely arid, creosote bush and mesquite desert up into the timbered interior of the mountain range. The larvae were found at about 5500 ft. elevation in a zone characterized by alligator-barked juniper (*Juniperus deppeana*) and the lower fringes of yellow pine (*Pinus scopulorum*). During the summer's field work they were taken to the Southwest Research Station of the American Museum of Natural History near Portal, Arizona, where they fed freely on *Quercus emoryi*; and eventually to Connecticut, where they fed freely on *Q. ilicifolia* and *coccinea*. By early September they had entered the last instar, and by the end of September had all enclosed themselves in cocoons. Twelve adults (6 ♂♂ and 6 ♀♀) emerged 14–29 April 1960.

After being bred to one of the males, one of the females laid about 180 eggs, nearly all of which hatched. The larvae of this F_1 generation were reared on various species of eastern *Quercus,* at first by the author and then, while he was out of the country, by Miss Alice Gray of the American Museum of Natural History. Considerable material of various larval instars, cocoons and adults has been preserved and is in the American Museum of Natural History and the United States National Museum.

Three ♂♂ and three ♀♀, one of each with the genitalia dissected, were compared with the type material of *Logoa laceyi* (Barnes and McDunnough) in the U. S. National Museum by Dr. Don Davis, and later by the author. Both Dr. Davis and the author consider them identifiable as *laceyi*. However, in the absence of any modern systematic work on the group it would be unwise to say what *laceyi* (type locality Texas) is—a distinct species or a subspecies or form of something else, especially since neither the genitalia nor the color and pattern show clear-cut distinguishing characters, and adequate material is lacking. At present, therefore, it seems best merely to record the characteristics of this material for the benefit of some future student.

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Fig. 1. *Lagoa laceyi* (Barnes & McDunnough) mature larva, lateral aspect (head to left) × 3.

eggs Length 2.2–2.5 mm., width about 1 mm. Bluntly ovoid, somewhat flattened. Laid in rows, with the sides contiguous, and thickly covered with hairs and hair-like scales of the female's vestiture. Hatching period: 7–9 days.

immature larva Vestiture, except in color, as described below for mature larva; almost wholly white, only the urticating setae being brownish and, in penultimate instar, some of the medium length plumose setae being faintly brownish.

mature larva (Fig. 1) Length 20–30 mm. Skin creamy to slightly pinkish white. Prothorax greatly expanded cephalad and ventrad, forming a hood enclosing head; largely naked, with a fringe of hairlike setae around cephaloventral margin. Remainder of body with short, inconspicuous hairs arising from small patches around and above leg and proleg bases, and corresponding regions in legless segments; but prominent vestiture arising in tufts from flat, only slightly projecting verrucae. Vestiture of each verruca as follows: centrally a group of short, stiff, sharply pointed, smooth, brownish urticating setae; in a zone around these many very long, finely plumose, delicate hairlike setae; in a zone around these many shorter, stiffer, finely plumose setae. The urticating setae are more or less brownish. The very long plumose setae are white on the meso- and metathorax and abdominal segments 1–7, but brick red on abdominal segments 8–10. The shorter plumose setae are mostly dark to blackish except that on the mesothorax they tend to be paler brown, or even in part whitish.

On the mesothorax there are four verrucae on each side. The most ventral, and largest, is just posterior and slightly ventral to the prothoracic spiracle. The other three, somewhat smaller and nearly equal to each other, lie farther caudad on the segment, and extend in a line dorsad. On the metathorax and abdominal segments 1–8 there are only 3 verrucae on each side, forming 3 longitudinal series, subdorsal, supraspiracular and subspiracular; of

these the supraspiracular ones are the largest. On the 9th abdominal segment on each side the verrucae of the subdorsal and supraspiracular series are like those of these series anterior to them; but the most ventral one is much smaller and only slightly ventrad and considerably posterad of the one above it. The last segment is largely naked dorsally, with a fringe of long, plumose setae around the caudal margin and a tuft above each proleg.

In the mature larva many of the very long, white setae of the thorax tend to droop cephalad and ventrad; the more dorsal ones of the anterior abdominal segments stand up almost straight dorsad, forming a conspicuous crest. There is a similar, but less conspicuous middorsal crest on the posterior abdominal segments. The shorter plumose setae vary considerably in individuals from a medium brown to almost black; these are most conspicuous laterally, especially those of the subspiracular verrucae. In the immature larvae the long setae show no such arrangement, protruding randomly.

COCOON Length 18–22 mm. Parchment-like, formed of brown silk and other secretions, in which are intermingled most of the soft, red, white and black larval setae but few, if any of the urticating ones. Near the anterior end is a dorso-ventrally diagonal, flat, very hard and stiff partition. Anterior to this the cocoon is very thin and delicate, with an especially abundant mass of the larval setae filling the anterior space. During eclosion the pupa pushes against the hard partition and is led by its slant to the surface of the cocoon away from the solid object to which the cocoon is fastened; this corresponds to the ventral surface of the pupa. The edge of the stiff partition here breaks easily away from the wall of the cocoon, forming a subterminal slit through which the pupa emerges for at least the length of its head and thorax.

SIGNIFICANCE OF THE LARVAL APPEARANCE

It is perfectly possible that the all-white, fluffy appearance of the smaller larvae has a protective function, making them resemble the tangled masses of cottonwood (*Populus*) down that is almost omnipresent in the Southwest at this stage of the larval life, floating thickly in the air and accumulating in masses on nearly everything. The similarity of the larvae to this down was, in fact, noted when they were collected. The mature larvae must be regarded as definitely aposematic, their black, white and red coloration making a distinctive recognition pattern. They are, of course, well protected by their urticating setae.

Another point of interest is the similarity to these and other protected megalopygid larvae of the larvae of some of the metalmark butterflies (Riodinidae), occurring in the same environments, which also have long, drooping white hairlike setae. The metalmark larvae may benefit from their resemblance to cottonwood down, and may also benefit, as Batesian mimics, from their resemblance to the megalopygid larvae. The author, in fact, thought that the very small laceyi larvae were metalmarks when he first saw them.

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